

SPECIAL NOTE FOR GEOMEMBRANE LINER

This Special Note will apply where indicated on the plans or in the proposal. Section references herein are to the Department's 2008 Standard Specifications for Road and Bridge Construction.

1.0 DESCRIPTION. Furnish and place a geomembrane liner at the locations shown on the plans or as the Engineer directs.

2.0 MATERIALS.

2.1 Geomembrane Liner. Use a textured high density polyethylene material meeting the following minimum specifications.

Property	Minimum Value ⁽¹⁾	Test Method
Thickness (mils)	40	ASTM D 5994
Tensile properties *Yield (lb/in)	84	ASTM D 638
Puncture Resistance (lb)	60	ASTM D 4833
Tear Resistance (lb)	28	ASTM D 1004
Seam Strength (lb/in)	84	ASTM D 4437

⁽¹⁾ All numerical values represent minimum average roll value (i.e., test results from any sampled roll in a lot shall meet or exceed the minimum values in the table)

2.2 Geotextile Fabric. Conform to Section 845.

2.3 Perforated Pipe Underdrain. Conform to Section 704.

2.4 Sand. Provide natural, crushed or conglomerate sand conforming to subsection 804.09.

3.0 CONSTRUCTION. Excavate and prepare the area to be covered as shown on the Plans or as the Engineer directs. Construct a pipe trench just outside the limits of the subgrade location on each side (see *figure 1* for additional details). Remove all sharp and jagged objects from the prepared area. Ensure the prepared area for the liner is a minimum of 20 inches below the top of subgrade. Place the geomembrane liner over the entire area, including pipe trenches. Hot weld all seams. Place 4-inch perforated underdrain pipe in the trenches. Fill trenches up to liner elevation with sand. Provide appropriate drainage outlets away from the excavated area for pipe drains. Obtain approval from the Engineer that materials and installation procedure are satisfactory. Perform corrective action on areas that the Engineer does not accept. Cover the entire area over the geomembrane liner with 6 inches of sand. Place Type IV geotextile fabric over the sand. Prepare subgrade as outlined in the plans.

Repair or replace all tears, punctures, or damage at no cost to the Department.

Submit a written manufacturer's certification with each shipment of Geomembrane Liner that the material conforms to this section.

4.0 MEASUREMENT.

4.1 Geomembrane Liner Material. The Department will measure the quantity in square yards according to Subsection 214.04.

4.3 Perforated Pipe and Non-Perforated Pipe. The Department will measure perforated and non-perforated pipe according to Subsection 704.04.02.

4.4 Sand. The Department will measure the quantity in tons. The Department will not measure sand utilized in the perforated pipe trench for payment and will consider it incidental to the perforated pipe.

4.5 Geotextile Fabric, Type IV. The Department will measure the quantity used to cover the sand as described in Part 3 of this note in square yards. The Department will not measure materials used in laps or seams. The Department will not measure fabric used for wrapping the perforated pipe and will consider it incidental to perforated pipe.

4.6 Perforated Pipe Headwalls. The Department will measure the quantity according to Subsection 704.04.03.

5.0 PAYMENT. The Department will make payment for the completed and accepted quantities under the following:

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
21843EN	Geomembrane Liner	Square Yard
02598	Fabric-Geotextile, Type IV	Square Yard
01000	Perforated Pipe – 4 inch	Linear Foot
01010	Non-perforated Pipe – 4 inch	Linear Foot
01020-01035	Perforated Pipe Headwall	See Subsection 710.05
02700	Sand	Ton

The Department will consider payment as full compensation for all work required under this section.

January 1, 2008

FIGURE I
TYPICAL SECTION
GEOMEMBRANE INSTALLATION

